

## Office of Resource Conservation

### State of Illinois

### Grant Proposal

**Project Number:** T-85-D-1

**Project Title:**

Recovery of Greater Prairie-Chickens in Illinois

**Background:**

The Greater Prairie-Chicken (*Tympanuchus cupido pinnatus*) is the signature bird of the tallgrass prairie. The presettlement distributions of this bird and this ecosystem were essentially identical. At present, the greater prairie-chicken is an endangered species in Illinois. Throughout their range, prairie-chickens receive high conservation priority, particularly due to continuing population declines. Grasslands have been identified as some of the most endangered ecosystems in North America, so it is not surprising that many associated species are of concern because of their level of decline (Vodehnal et. al. 2008). The charismatic breeding displays of prairie-chickens help to garner broad-based support for conservation efforts. Further, greater prairie-chickens have large home ranges and require a variety of grassland habitats throughout the year. For these reasons, the greater prairie-chicken is an excellent “umbrella species” for prairie conservation: regimes that sustain prairie-chickens are likely to encompass the needs of numerous other species that require smaller areas or fewer habitat resources (Walk 2004). Currently Prairie Ridge State Natural Area provides habitat for 98 species in greatest need of conservation as identified in the Illinois Wildlife Action Plan (Appendix A). These include 24 state endangered, 6 state threatened, 6 watch list species and 5 area sensitive species. Among these are breeding populations of 9 state endangered and 1 state threatened bird species, 4 state endangered and 1 state threatened plant species, one state endangered invertebrate and one state endangered and two state threatened reptile species. Additionally, all 10 area sensitive grassland bird species found in Illinois have been documented on this site. Eight of the 10 area sensitive grassland bird species are known to breed at Prairie Ridge. Of special importance is the fact that Prairie Ridge host’s the states only breeding population of greater prairie chickens and the state’s largest breeding populations of northern harriers and short-eared owls.

The State of Illinois has been involved with preserving Greater Prairie-Chickens in Illinois since 1940 when the first prairie-chicken refuge (Green River State Wildlife Area) was purchased. Prairie-chickens disappeared from this area and the Iroquois County State Wildlife Area (purchased in 1944) by 1960. Beginning in 1963, “sanctuaries” of grassland habitat were established in Jasper and Marion counties, known today as Prairie Ridge State Natural Area, where all of the remaining prairie-chickens in Illinois occur. In spite of these efforts, the prairie-chicken in Illinois has declined by >95% over the past 50 years (Walk 2004).

The Illinois Audubon Society (IAS) and the Illinois Chapter of The Nature Conservancy (TNC) have been involved with preservation of Illinois prairie-chickens since the late 1950’s when declining populations

prompted land acquisition to preserve this species. Both IAS and TNC pre-acquired land for the Illinois Department of Natural Resources to provide habitat for prairie-chickens. IAS still owns 375 acres that is currently being managed in association with Prairie Ridge State Natural Area for grassland wildlife. The Illinois Natural History Survey also has played an important role in what we know today about the history and preservation of Illinois prairie-chickens. Stephen Forbes, INHS conducted statewide prairie-chicken surveys in the early 1900's, followed by Dr. Ralph Yeatter's prairie-chicken research in the 1930's and Ron Westemeier's long term nest ecology study from 1966 – 1998. Ron also was responsible for sanctuary design and management during many of those years.

The future of Prairie Ridge State Natural Area (PRSNA) and the preservation of Illinois Greater Prairie-Chickens are at a critical crossroads. Prairie-chicken numbers have declined drastically due to poor nesting conditions from 2008 – 2011 involving above normal rainfall (35%), a localized severe hailstorm and then followed by the historic 2012 drought. The preservation of this species in Illinois is now likely dependent upon augmenting the population with birds from other states for genetic and demographic purposes.

The Illinois Wildlife Action Plan (IWAP) was approved by the U.S. Fish and Wildlife Service in 2005 (<http://dnr.state.il.us/orc/wildliferesources/theplan/home.htm>). The Plan is organized around campaigns – sets of conservation actions, programs and strategies that seek to address the most widespread and the most urgent issues affecting wildlife and habitats, in an efficient, effective and comprehensive manner. Prairie Ridge State Natural Area is listed within the Prairie Campaign/Southern Till Plain Natural Division as an Opportunity Area noted for a large publicly owned grassland (pages 208-210). The IWAP lists greater prairie-chickens as an animal characteristic of the Southern Till Plain Natural Division (page 203).

### **Need:**

Based on the “A Plan for the Recovery of the Greater Prairie-Chicken in Illinois (Walk 2004)” “existing, geographically separate populations should be considered candidates for augmentation through translocation when population size falls below 50 birds or genetic and/or demographic constraints are demonstrated to be preventing population recovery. Prairie Chickens in Jasper County fell below the 50 threshold with a spring population of 42 birds in 2012. The 2012 Jasper County spring male count is down 50% from 2011 (42) and 47% below the 10 year average. In Marion County the 2012 spring count was 32 males - down 20% from 2011 (40) and 30% below the 10 year average, leaving the population just above the 50 threshold at 64 birds during the spring of 2012.

Genetic and demographic rescue of Illinois Prairie Chickens was first initiated in 1992 and was well documented by the INHS (Westemeier et al 1998). Illinois prairie-chicken egg viability was successfully restored with translocations from large genetically diverse populations for 20 years; however chance environmental and demographic events has caused critically low levels of prairie chickens once again. Westemeier 1998 states sufficient genetic resources appear to be critical for maintaining populations of greater prairie chickens and predicts periodic translocations will be necessary to maintain Illinois Prairie Chickens unless significantly more habitat becomes available. Isolated small populations, such as greater prairie-chickens in Illinois, cannot be conserved indefinitely with inadequate habitat and small size. Translocation of prairie chickens is a tool which may aid long term recovery efforts.

Comprehensive land protection, accompanied by active management focused on preparing suitable habitat at the appropriate scale should always precede translocations (Recommendations for Recovery of Greater Prairie-Chicken in Missouri (FY07 –FY11) 2006).

**Objectives:**

Funds approved through this grant will be used for habitat restoration and stewardship of private lands that are associated with grassland conservation at Prairie Ridge State Natural Area and for the translocation of greater prairie-chickens for genetic and demographic rescue of Illinois Prairie-Chickens.

We propose translocating up to 300 birds from Kansas over a period of three years to augment the current populations at Prairie Ridge State Natural Area. Under this plan 100 adult birds (approx. 50 males, 50 hens) will be translocated annually. Prairie chickens will be trapped on leks during March and April in the Smoky Hills Region of central Kansas. Preliminary verbal approval has been secured with the Kansas Department of Game and Fish and upon approval of this grant a permit to trap in Kansas will have to be applied for. The translocation effort will be monitored and evaluated annually by lek census of banded adult birds at Prairie Ridge and feather collection for genetic analysis. This genetic analysis is dependent upon funding being sought after by researchers at the Illinois Natural History Survey.

Restoration and stewardship of critical grassland bird habitat on private land will expand much needed habitats for species in greatest need of conservation and meet the goals and objectives set forth in the Illinois Wildlife Action Plan. The focus of the restoration and stewardship will be on suitable private lands associated with the core grasslands at Prairie Ridge State Natural Area. These private lands (623 acres) are owned by the Illinois Audubon Society (IAS), Ameren-CIPS Utility Company and Canadian National Railroad (Figures 1, 2 and 3). These areas are 1) listed on the Illinois Natural Areas Inventory, 2) provide suitable habitats for threatened and endangered species, 3) the IAS tracts are protected in perpetuity through an Illinois Nature Preserves Land and Water Reserves program and all are designated as IWAP Conservation Opportunity Areas (page 208).

Types of activities to be accomplished under this project include preparing a prairie chicken translocation plan, implementing the plan to translocate prairie chickens, annual surveys and feather collection to monitor results of translocation and habitat management on critical areas.

**Expected Results or Benefits:**

Genetic and demographic rescue of Illinois Prairie Chickens was first initiated in 1992 and was well documented (Westemeier et al 1998). Illinois prairie-chicken egg viability was successfully restored with translocations from large genetically diverse populations for 20 years; however chance environmental and demographic events has caused critically low levels of prairie chickens once again. Westemeier 1998 states sufficient genetic resources appear to be critical for maintaining populations of greater prairie chickens and suggests periodic translocations will be necessary to maintain Illinois prairie-chickens unless significantly more habitat becomes available. Isolated small populations, such as greater prairie-chickens in Illinois, cannot be conserved indefinitely with inadequate habitat and small size. Translocation of prairie chickens is a tool which may aid long term recovery efforts. Comprehensive land

protection, accompanied by active management focused on preparing suitable habitat at the appropriate scale should always precede translocations (Missouri Prairie Chicken Recovery Plan 2006).

The purpose of this plan is to implement conservation measures to increase/maintain genetic diversity and fitness by conducting translocations of birds from large genetically diverse populations from Kansas. These conservation measures will provide more time for conservation agencies/organizations to meet land protection goals identified in A Plan for the Recovery of the Greater Prairie-Chicken in Illinois (Walk 2004).

#### **Approach:**

Partner with the Illinois Audubon Society, the Illinois Chapter of The Nature Conservancy and the Illinois Natural History Survey to implement conservation measures to provide for the genetic and demographic rescue of Illinois Prairie-Chickens. A grant proposal has also been prepared for funding through the Wildlife Preservation Fund administered by IDNR.

#### **Illinois Audubon Society/The Nature Conservancy**

The Illinois Audubon Society and The Nature Conservancy plan to fund raise through their membership to provide funding for the prairie-chicken translocation. This funding can be used to contract with an individual who has previous experience with trapping and relocating prairie chickens from Kansas. This individual will locate Kansas booming grounds, secure landowner permission, handle veterinarian health inspections, and coordinate Illinois trappers. He estimated he would spend 25 days in Kansas for this project. IAS/TNC can also provide funding for 1) air transportation of prairie-chickens from Wichita, Kansas to St. Louis Missouri and 2) partial travel costs for Illinois Biologists to assist with the trapping.

#### **Illinois Natural History Survey**

This grant will provide funding for a 3 year position based at Prairie Ridge State Natural Area to assist with the recovery of Illinois prairie-chickens. The Illinois Natural History Survey will serve as a sub grantee for this position. The Illinois Natural History Survey has had a long relationship with this project beginning in 1966 with a 30 year prairie-chicken ecology study. This research project provided the groundwork for the current goals and management of Illinois prairie-chickens at Prairie Ridge State Natural Area. This individual will be responsible for the following activities.

- 1) Responsible for coordinating the translocation of prairie-chickens from Kansas to Illinois. Position will develop a three year (2014 – 2016) prairie- chicken translocation plan, apply for trapping/collecting permits from Kansas Department of Game and Fish for the 3 year period, coordinate field activities, prepare trapping and transporting supplies, transportation of birds by air, develop and maintain working relationships with Kansas Department of Game and Fish, Illinois Audubon Society, University of Illinois, Illinois Natural History Survey and The Nature Conservancy (30%).
- 2) Assist with trapping birds in Kansas, transporting to airport, coordinate the release of birds in Illinois, monitor and evaluate translocation and coordinate feather collection for continuing genetic work with the Illinois Natural History Survey (30%).

3) Restoration and stewardship of critical grassland bird habitat on private lands (Figures 1,2 and 3) that are associated with the core grasslands at Prairie Ridge State Natural Area. Work on high quality grassland restorations on lands owned by the Illinois Audubon Society (375 acres) (Figure 1 and 2). Additional work will be conducted on 12 Mile Prairie (Figure 3) (48 acres – owned by the Canadian National Railroad with Illinois Department of Transportation holding a scenic easement)(Figure 3) in Marion/Fayette, Clay Counties and grasslands owned by Ameren-CIPS Utility Company in Jasper County (Figure 1) (200 acres). Management activities will include; prescribed burning, invasive woody plant and exotics species control, boundary protection/fence repair, habitat creation/reconstruction/enhancement, native seed collection, and booming ground development and maintenance (40%).

### **Illinois Department of Natural Resources**

IDNR will use the balance of the grant to cover unfunded expenses including air transportation of the prairie-chickens, employee out of state travel and per diem, fuel for vehicles and materials/supplies for trapping prairie chickens.

### **Wildlife Preservation Fund**

A large project grant application was submitted for \$8000.00 for funding to hire a contractor to coordinate the translocation of greater prairie-chickens in Kansas. This contractor will have previous experience with trapping and relocating prairie-chickens from Kansas to Missouri. The contractor will locate booming grounds in Kansas with the help of Illinois biologist, secure landowner permission, handle veterinarian health inspections and coordinate Illinois trappers. An estimated 25 days would be spent in Kansas for this project.

**Project Duration:** November 1, 2013 to June 30, 2017.

The following activities will be conducted during the approximate time frame:

1)

November 1, 2013 – February 15<sup>th</sup>, 2014

November 1, 2014 – February 15<sup>th</sup>, 2015

November 1, 2015 – February 15, 2016

Responsible for coordinating the translocation of prairie-chickens from Kansas to Illinois. Position will develop a three year (2014 – 2016) prairie- chicken translocation plan, apply for trapping/collecting permits from Kansas Department of Game and Fish for the 3 year period, coordinate field activities, prepare trapping and transporting supplies, transportation of birds by air, develop and maintain working relationships with Kansas Department of Game and Fish, Illinois Audubon Society, University of Illinois, Illinois Natural History Survey and The Nature Conservancy (30%).

2)

March 15, 2014 – June 30 2014

March 15, 2015 – June 30, 2015

March 15, 2016 – June 30, 2016

Assist with trapping birds in Kansas, transporting to airport, coordinate the release of birds in Illinois, monitor and evaluate translocation and coordinate feather collection for continuing genetic work with the Illinois Natural History Survey (30%).

3)

February 15, 2014 – March 15, 2014    July 1, 2014 – October 31, 2014

February 15, 2015 – March 14, 2015    July 1, 2015 – October 31, 2015

February 15, 2016 – March 14, 2016    July 1, 2016 – October 31, 2016

Restoration and stewardship of critical grassland bird habitat on private lands (Figures 1, 2 and 3) associated with the core grasslands at Prairie Ridge State Natural Area. Work on high quality grassland restorations on lands owned by the Illinois Audubon Society (375 acres) (Figure 1 and 2). Additional work will be conducted on 12 Mile Prairie (Figure 3) (48 acres – owned by the Canadian National Railroad with Illinois Department of Transportation holding a scenic easement)(Figure 3) in Marion/Fayette, Clay Counties and grasslands owned by Ameren-CIPS Utility Company in Jasper County (Figure 1) (200 acres). Management activities will include; prescribed burning, invasive woody plant and exotics species control, boundary protection/fence repair, habitat creation/reconstruction/enhancement, native seed collection, and booming ground development and maintenance (40%).

4)

November 1, 2016 – June 30, 2017

Prepare Final SWG Report for this grant.

**Location:**

Figure 1 – Map of Prairie Ridge State Natural Area – Jasper County Units

Figure 2 – Map of Prairie Ridge State Natural Area – Marion County Units

Figure 3 – Map of 12 Mile Prairie

Figure 4 – Map of Regional Location of Recovery of Greater Prairie-Chicken Project.

**Related Grants:**

T-76-D-1 - Statewide Public Lands Native Prairie/Savanna Wildlife Habitat Restoration Project

**Compliance:**

A collecting permit will be necessary to trap prairie-chickens in Kansas. There is an online application on the Kansas Department of Wildlife, Parks and Tourism website. Allow up to 6 weeks for processing. The permit must be in the collector's possession while conducting activities described in the collecting permit application. The permit expires December 31 of the year issued. An annual collecting report will be due January 31 following expiration.

The IDNR will use its CERP (Comprehensive Environmental Review Process) as a tool to aid the Department in meeting NEPA compliance for the project outlined under this grant proposal. It is the Department's policy to require CERP applications for all land disturbing activities unless those activities are covered by CERP exemptions.

All planned activities will also be in compliance with the Endangered Species Act. All determinations and documentation will be in accordance with the current established U.S. Fish and Wildlife Service protocols for section 7.

All planned activities will be in compliance with the National Historic Preservation Act and the Council on Historic Preservation Act. All determinations and documentation will be in accordance with the terms of the Programmatic Agreement, as amended, effective September 23, 2002.

When applicable, those planned activities which involve a floodplain and/or jurisdiction wetlands will be done in accordance with Presidential Executive Orders 11988 and 11990.

When applicable, those planned activities which involve programs and/or site improvements will be done in accordance with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act.

When applicable, those planned activities which involve the use of pesticides, herbicides or other comparable chemicals will be done in accordance with current state and federal regulations to assure the safe and legal application of those chemicals. All chemicals will be applied in accordance with the manufacturers label instructions. All persons applying chemicals will be licensed by the Illinois Department of Agriculture as a chemical operator along with a licensed applicator, in accordance with Illinois state law.

**Grant Proposal Support Documentation:**

The following documents are attached in support of this grant proposal:

1. Application for Federal Assistance (Standard Form 424)
2. Federal Aid Section 7 Evaluation Form

### 3. Illinois Clearinghouse Response per Federal Executive Order 12372

### 4. NEPA Compliance Checklist and Environmental Assessment

### 5. Location Map (See Figure 1).

#### **Project Budget:**

<b>Project Title</b> Recovery Of Greater Prairie-Chickens in Illinois.							
<b>Project Number:</b>							
<b>Project Time Frame:</b> Start Date - (11/01/2013); End Date - (06/30/2017)							
Budget Categories	Federal Funds			Non-Federal Funds (1)			Totals
	INHS	IAS	IDNR	INHS	IAS	IDNR	
Salaries, Wages and Fringe Benefits	\$199,600.00			\$49,333.00		\$46,944.00	\$295,877.00
Travel	\$6,300.00		\$28,628.00		\$10,000.00		\$44,928.00
Equipment (2)							\$0.00
Materials and Supplies			\$6,742.00				\$6,742.00
Contractual Services (incl air transportation for birds)		\$30,750.00			\$10,000.00	\$8,000.00	\$48,750.00
Other (fuel for vehicles)		\$17,120.00			\$10,000.00		\$27,120.00
Total Direct Costs	\$205,900.00	\$47,870.00	\$35,370.00	\$49,333.00	\$30,000.00	\$54,944.00	\$423,417.00
Modified Total Direct Cost (MTDC) (3)	\$205,900.00	\$47,870.00	\$35,370.00	\$49,333.00	\$30,000.00	\$54,944.00	\$423,417.00
Indirect Rate of 20%(INHS) or (15%)(IAS) (4)	\$41,180.00	\$7,180.00					\$48,360.00
Indirect Rate of 21.96 % (5) IDNR			\$0.00			\$10,309.00	\$10,309.00
Indirect Rate of 58.6% INHS on-campus/24% off campus				***\$28,909.00***			
Unrecovered Indirect Rate (20% vs 24.00% MTDC) (6)				***\$8,236***	\$0.00	\$0.00	\$0.00
Total Project Costs	\$247,080.00	\$55,050.00	\$35,370.00	\$86,478.00	\$30,000.00	\$65,253.00	\$519,231.00
Percentage of Total Project Cost	\$337,500.00		65.00%	\$181,731.00		35.00%	

#### **Budget Justification:**

##### Salaries, Wages and Fringe benefits:

The INHS Federal salaries are outlined in the Approach Section of this document. The INHS non federal salaries are match from INHS employees monitoring the prairie chicken translocation project. The IDNR salaries are non federal match from IDNR staff at Prairie Ridge State Natural Area.

Travel: The travel is out of state and provides for travel expenses for staff involved in trapping prairie chickens in Kansas over the 3 year project. The INHS federal travel is for the coordinator position funded through this project. The IDNR federal travel funds will be for IDNR personnel traveling to Kansas to trap prairie chickens. The IAS non federal travel funds are from projected fund raising by IAS.



#### Materials and Supplies:

This expenditure will be for trap materials such electric fence posts, 2 ft. chicken wire, 1" X 1" welded wire, small mesh netting, portable blinds and chairs, transportation boxes and other misc. items

Contractual Services: Federal funds will be granted the IAS to contract a field coordinator with experience trapping prairie chickens in central Kansas and provide for air transportation of prairie-chickens from Kansas to Illinois. IAS will also fund raise to help offset these costs. IDNR will use a grant in year one to contract with the field coordinator in Kansas. IAS will use federal funds for air transportation of the birds from Wichita, KS. To St. Louis, Missouri.

#### **Project Personnel:**

The following IDNR personnel will be the primary staff implementing the Recovery of Greater Prairie-Chickens in Illinois.

Scott Simpson – Project Manager  
IDNR – Prairie Ridge State Natural Area – Site Manager  
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Jeff Hoover  
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217/244-2922

Wendy Schelsky  
Illinois Natural History Survey  
217/333-4712

**References:**

Illinois Department of Natural Resources. 2005. Illinois Comprehensive Wildlife Conservation Plan – Strategy. Illinois Department of Natural Resources. Version 1.0. xxv+353pp.

Recommendations for the Recovery of Greater Prairie-Chicken in Missouri (FY 07-FY11) 2006. Division of Wildlife – Technical Report. Missouri Department of Conservation. 75pp.

Vodehnal, W.L., and J.B. Haufler, Editors. 2008. A grassland conservation plan for prairie grouse. North America Grouse Partnership. Fruita, CO.

Walk, Jeff. 2004. A plan for the Recovery of the Greater Prairie Chicken in Illinois. Illinois Department of Natural Resources. Springfield, Illinois, USA.

Westemeier, R.L., J. K. Brawn, S.A. Simpson, T.L. Esker, R.W. Jansen, J.W. Walk, E.L. Kershner, J.L. Bousat, and K.N. Paige. 1998b. Tracking the long-term decline and recovery of an isolated population. *Science* 282:1695-1698.

## Appendix A.

Benefitted Species in Greatest Need of Conservation at Prairie Ridge State Natural Area (Status – FE/SE – Fed or State Endangered; FT/ST – Fed or State Threatened, CP – Conservation Priority/Species in Greatest Need of Conservation)

	Species Name	Scientific Name	Status
<b>Amphibians</b>			
	Crayfish frog	<i>Rana areolata</i>	CP
	Wood frog	<i>Rana sylvatica</i>	CP
<b>Birds</b>			
	Henslow's sparrow	<i>Ammodramus henslowii</i>	CP
	LeConte's sparrow	<i>Ammodramus leconteii</i>	CP
	Nelson's sharp-tailed sparrow	<i>Ammodramus nelsoni</i>	CP
	Grasshopper sparrow	<i>Ammodramus savannarum</i>	CP
	American black duck	<i>Anas rubripes</i>	CP
	Great egret	<i>Ardea alba</i>	CP
	Short-eared owl	<i>Asio flammeus</i>	SE, CP
	Lesser scaup	<i>Aythya affinis</i>	CP
	Canvasback	<i>Aythya valisineria</i>	CP
	Upland sandpiper	<i>Bartramia longicauda</i>	SE, CP
	American bittern	<i>Botaurus lentiginosus</i>	SE, CP
	Red-shouldered hawk	<i>Buteo lineatus</i>	CP
	Broad-winged hawk	<i>Buteo platypterus</i>	CP
	Swainson's hawk	<i>Buteo swainsoni</i>	SE, CP
	Smith's longspur	<i>Calcarius pictus</i>	CP
	Stilt sandpiper	<i>Calidris himantopus</i>	CP
	Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	CP
	Whip-poor-will	<i>Caprimulgus vociferus</i>	CP
	Brown Creeper	<i>Certhia americana</i>	CP
	Chimney swift	<i>Chaetura pelagica</i>	CP
	Piping plover	<i>Charadrius melodus</i>	CP
	Black tern	<i>Chlidonias niger</i>	SE, CP
	Common nighthawk	<i>Chordeiles minor</i>	CP
	Northern harrier	<i>Circus cyaneus</i>	SE, CP
	Marsh wren	<i>Cistothorus palustris</i>	CP
	Sedge wren	<i>Cistothorus platensis</i>	CP
	Yellow-billed cuckoo	<i>Coccyzus americanus</i>	CP
	Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	ST, CP
	Northern flicker	<i>Colaptes auratus</i>	CP
	Northern bobwhite	<i>Colinus virginianus</i>	CP
	Yellow rail	<i>Coturnicops noveboracensis</i>	CP
	Trumpeter swan	<i>Cygnus buccinator</i>	CP
	Cerulean warbler	<i>Dendroica cerulea</i>	CP
	Prairie warbler	<i>Dendroica discolor</i>	CP
	Bobolink	<i>Dolichonyx oryzivorus</i>	CP
	Little blue heron	<i>Egretta caerulea</i>	SE, CP
<b>Birds (cont'd)</b>	Snowy egret	<i>Egretta thula</i>	SE, CP
	Willow flycatcher	<i>Empidonax traillii</i>	CP
	Acadian flycatcher	<i>Empidonax virescens</i>	CP
	Rusty blackbird	<i>Euphagus carolinus</i>	CP
	Peregrine falcon	<i>Falco peregrinus</i>	ST, CP

	Common moorhen	<i>Gallinula chloropus</i>	SE, CP
	Wilson's snipe	<i>Gallinago delicatata</i>	CP
	Sandhill crane	<i>Grus canadensis</i>	CP
	Bald eagle	<i>Haliaeetus leucocephalus</i>	CP
	Wood thrush	<i>Hylocichla mustelina</i>	CP
	Yellow-breasted chat	<i>Icteria virens</i>	CP
	Mississippi kite	<i>Ictinia mississippiensis</i>	ST, CP
	Least bittern	<i>Ixobrychus exilis</i>	ST, CP
	Loggerhead shrike	<i>Lanius ludovicianus</i>	SE, CP
	Black rail	<i>Laterallus jamaicensis</i>	SE, CP
	Short-billed dowitcher	<i>Limnodromus griseus</i>	CP
	Hooded merganser	<i>Lophodytes cucullatus</i>	CP
	Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	CP
	Yellow-crowned night-heron	<i>Nyctanassa violacea</i>	SE, CP
	Black-crowned night-heron	<i>Nycticorax nycticorax</i>	SE, CP
	Kentucky warbler	<i>Oporornis formosus</i>	CP
	Osprey	<i>Pandion haliaetus</i>	SE, CP
	Savannah sparrow	<i>Passerculus sandwichensis</i>	CP
	Wilson's phalarope	<i>Phalaropus tricolor</i>	CP
	American golden-plover	<i>Pluvialis dominica</i>	CP
	Pied-billed grebe	<i>Podilymbus podiceps</i>	CP
	Prothonotary warbler	<i>Protonotaria citrea</i>	CP
	King rail	<i>Rallus elegans</i>	SE, CP
	American woodcock	<i>Scolopax minor</i>	CP
	Ovenbird	<i>Seiurus aurocapillus</i>	CP
	Dickcissel	<i>Spiza americana</i>	CP
	Field sparrow	<i>Spizella pusilla</i>	CP
	Least Tern	<i>Sternula antillarum</i>	FE, SE, CP
	Brown thrasher	<i>Toxostoma rufum</i>	CP
	Greater yellowlegs	<i>Tringa melanoleuca</i>	CP
	Greater prairie-chicken	<i>Tympanuchus cupido</i>	SE, CP
	Barn-owl	<i>Tyto alba</i>	SE, CP
	Blue winged warbler	<i>Vermivora pinus</i>	CP
	Bell's vireo	<i>Vireo bellii</i>	CP
<b>Invertebrates</b>			
		<i>Papaipema rutila</i>	CP
		<i>Papaipema limpida</i>	CP
	Blazing star borer	<i>Paipema beeriana</i>	CP
		<i>Papaipema maritime</i>	CP
	Rattlesnake master borer moth	<i>Papaipema eryngii</i>	SE
		<i>Schinia gaura</i>	CP
		<i>Phytometra Ernestina</i>	CP
		<i>Vaxi auratetla</i>	CP
<b>Mammals</b>			
	Bobcat	<i>Lynx rufus</i>	CP
	Least weasel	<i>Mustela nivalis</i>	CP

[illegible]

Figure 1. Prairie Ridge State Natural Area – Jasper County Unit

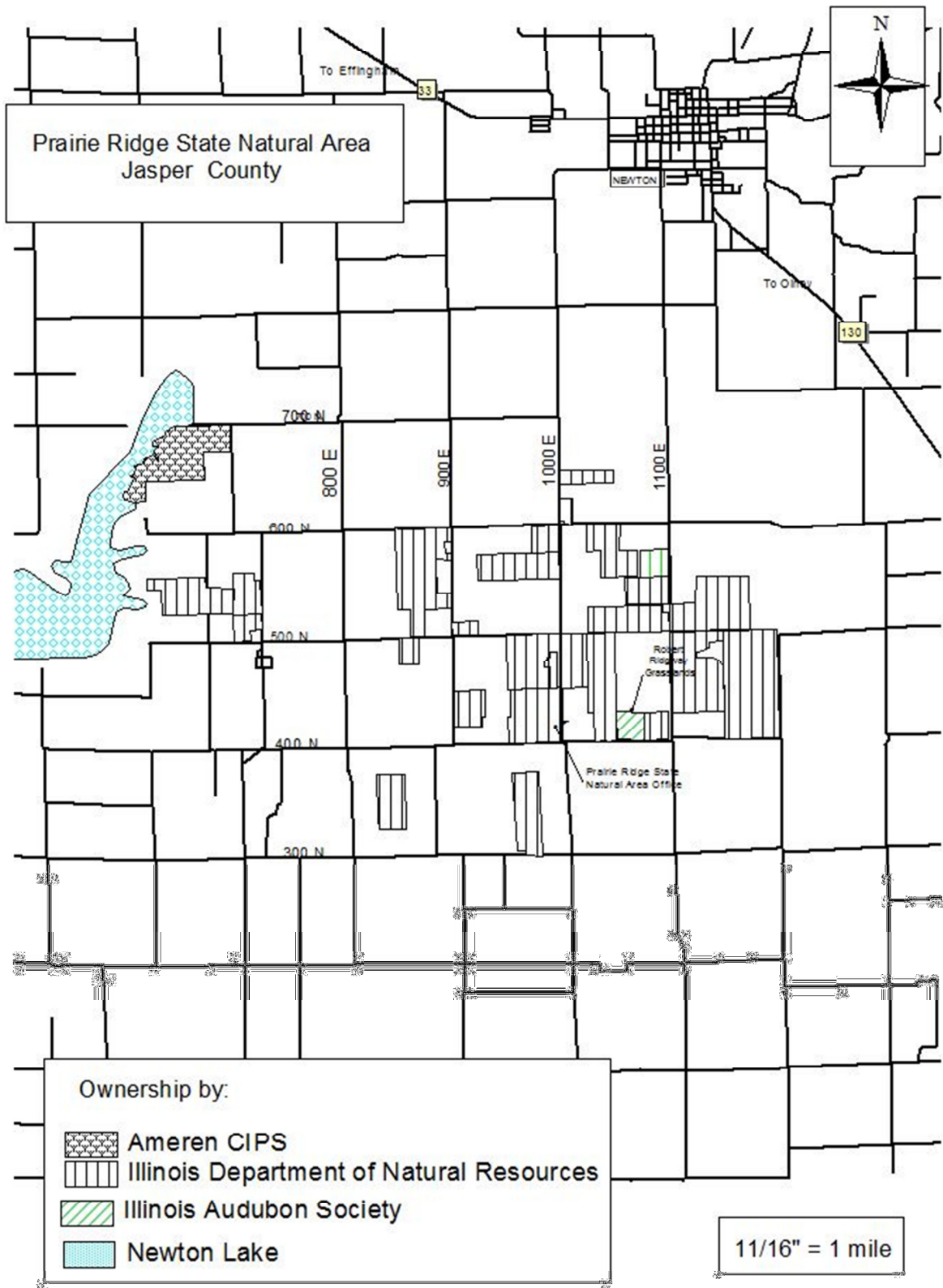


Figure 2. Prairie Ridge State Natural Area – Marion County Unit

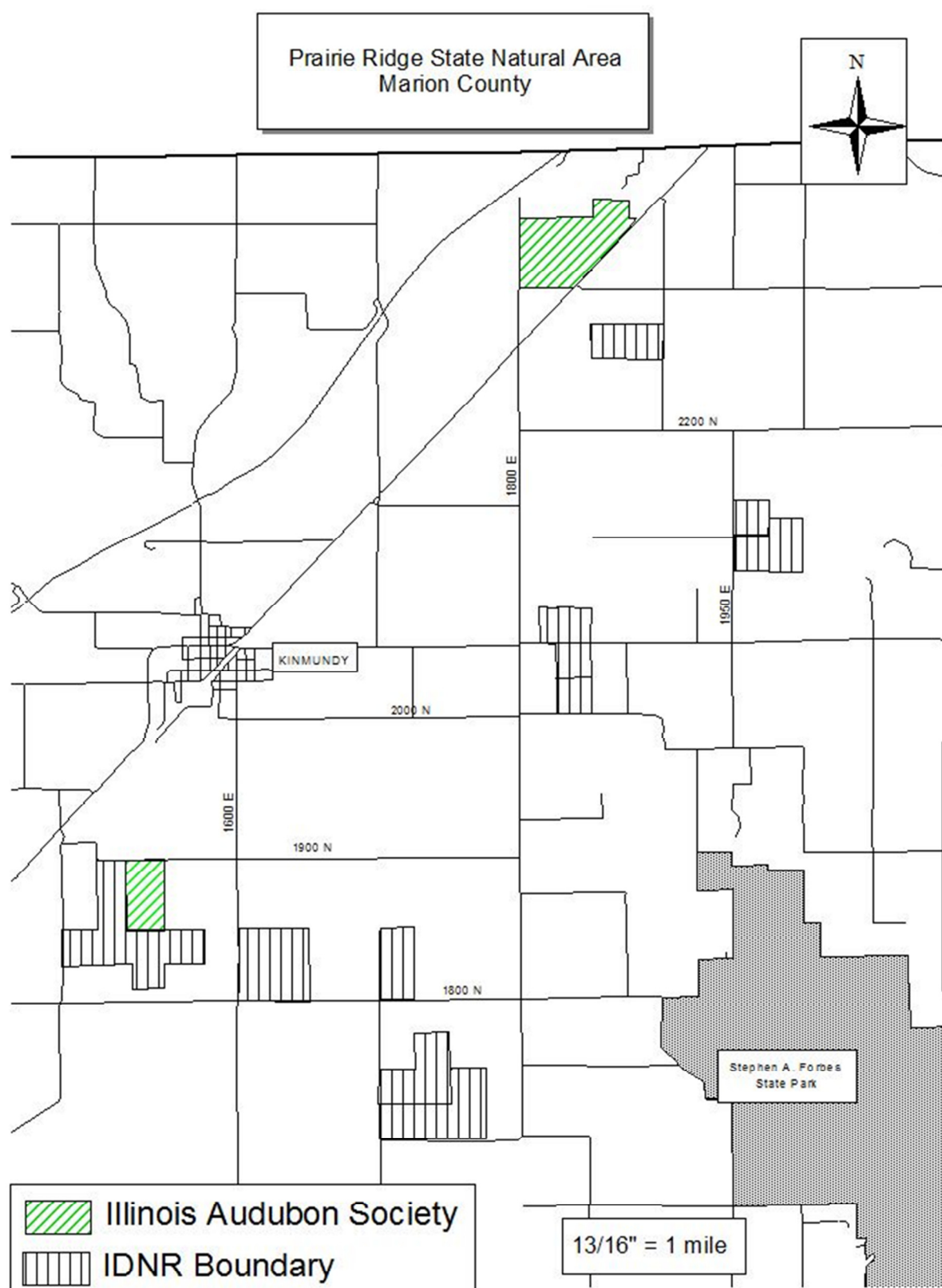




Figure 3. 12 Mile Prairie

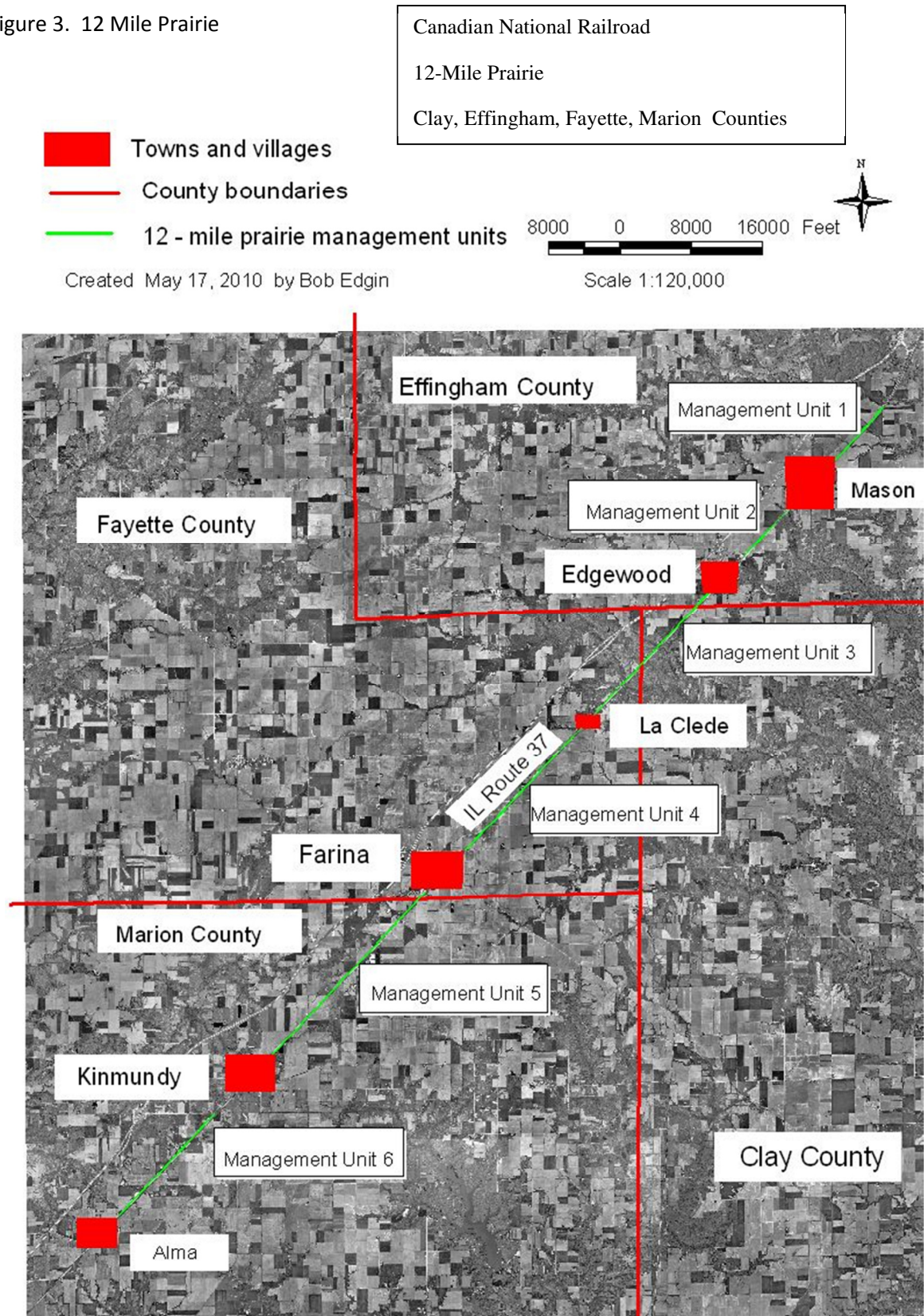




Figure 4. Regional Location of Recovery of Greater Prairie Chicken Project

